October 2006

VINETIC®-CPE

Voice over IP Processor for Customer Premises Equipment

VINETIC®-2CPE/-1CPE (PEB/PEF 3332/-3331), Version 2.2
VINETIC®-2ATA/-1ATA (PEB 3342/PEB 3341), Version 2.2
VINETIC®-2PLUS/-1PLUS (PEB 3320/PEB 3340), Version 2.2
VINETIC®-0/-CL (PEB 33322/PEB 33321), Version 2.2

Product Overview

Revision 1.0

Communication Solutions

Never stop thinking

Edition 2006-10-09

Published by
Infineon Technologies AG
81726 München, Germany

© Infineon Technologies AG 2006.
All Rights Reserved.

Legal Disclaimer

The information given in this document shall in no event be regarded as a guarantee of conditions or characteristics (“Beschaffenheitsgarantie”). With respect to any examples or hints given herein, any typical values stated herein and/or any information regarding the application of the device, Infineon Technologies hereby disclaims any and all warranties and liabilities of any kind, including without limitation warranties of non-infringement of intellectual property rights of any third party.

Information

For further information on technology, delivery terms and conditions and prices please contact your nearest Infineon Technologies Office (**www.infineon.com**).

Warnings

Due to technical requirements components may contain dangerous substances. For information on the types in question please contact your nearest Infineon Technologies Office.

Infineon Technologies Components may only be used in life-support devices or systems with the express written approval of Infineon Technologies, if a failure of such components can reasonably be expected to cause the failure of that life-support device or system, or to affect the safety or effectiveness of that device or system. Life support devices or systems are intended to be implanted in the human body, or to support and/or maintain and sustain and/or protect human life. If they fail, it is reasonable to assume that the health of the user or other persons may be endangered.

VINETIC®-CPE Voice over IP Processor for Customer Premises Equipment

Revision History: 2006-10-09, Revision 1.0

Previous Version: none

Page	Subjects (major changes since last revision)

Trademarks

ABM®, ACE®, AOP®, Arcofi®, ASM®, ASP®, BlueMoon®, BlueNIX®, ConverGate®, C166®, DUALFALC®, DuSLIC®, ELIC®, EPIC®, FALC®, GEMINAX®, IDEC®, INCA®, IOM®, Ipat®-2, IPVD®, Isac®, ITAC®, IWE®, IWORX®, M-GOLD®, MUSAC®, MuSLIC®, OCTALFALC®, OCTAT®, POTSWIRE®, QUADFALC®, QUAT®, SCOUT®, SCT®, SEROCCO®, S-GOLD®, SICAT®, SICOFI®, SIDEC®, SIEGET®, SLICOFI®, SMARTI®, SOCRATES®, VDSLite®, VINETIC®, 10BaseS® are registered trademarks of Infineon Technologies AG.

DIGITAPE™, EasyPort™, E-GOLD™, E-GOLDlite™, S-GOLDlite™, S-GOLD2™, S-GOLD3™, VINAX™, WildPass™, 10BaseV™, 10BaseVX™ are trademarks of Infineon Technologies AG.

Microsoft® and Visio® are registered trademarks of Microsoft Corporation. Linux® is a registered trademark of Linus Torvalds. FrameMaker® is a registered trademark of Adobe Systems Incorporated. APOXI® is a registered trademark of Comneon GmbH & Co. OHG. PrimeCell®, RealView®, ARM® are registered trademarks of ARM Limited. OakDSPCore®, TeakLite® DSP Core, OCEM® are registered trademarks of ParthusCeva Inc.

IndoorGPS™, GL-20000™, GL-LN-22™ are trademarks of Global Locate. ARM926EJ-S™, ADS™, Multi-ICE™ are trademarks of ARM Limited.

Table of Contents

Table of Contents 4
List of Figures 5
List of Tables 6
1 Preface 7
2 VINETIC®-CPE Family Overview 8
2.1 VINETIC®-2PLUS/-1PLUS 10
2.1.1 Main Features 10
2.1.2 Package 11
2.1.3 Applications 11
2.2 VINETIC®-2CPE/-1CPE 12
2.2.1 Main Features 12
2.2.2 Package 13
2.2.3 Applications 13
2.3 VINETIC®-2ATA/-1ATA 14
2.3.1 Main Features 14
2.3.2 Package 14
2.3.3 Applications 14
2.4 VINETIC®-0/-CL 15
2.4.1 Main Features 15
2.4.2 Package 15
2.4.3 Applications 15
2.5 SLIC-DC and SLIC-E 16
3 Software and Development Tools 17
Literature References 18

List of Figures

Figure 1 VoIP CPE System Block Diagram 7
Figure 2 VINETIC®-2PLUS Block Diagram 10
Figure 3 VINETIC®-1PLUS Block Diagram 11
Figure 4 VINETIC®-PLUS Application Example 11
Figure 5 VINETIC®-2CPE Block Diagram 12
Figure 6 VINETIC®-1CPE Block Diagram 12
Figure 7 VINETIC®-CPE Application Example 13
Figure 8 VINETIC®-ATA Application Example 14
Figure 9 VINETIC®-CL/-0 Block Diagram 15

List of Tables

Table 1 VINETIC®-CPE Device Feature Comparison Table 8
Table 2 VINETIC®-CPE Device Feature Comparison Table 9
Table 3 VINETIC®-CPE Package Type Comparison Table 9

1 Preface

VINETIC®-CPE is the Infineon VoIP processor series which targets variant Customer Premises Equipment (CPE) market. Inheriting market proved Infineon VoIP system technology and CODEC/SLIC design, VINETIC®-CPE offers the flexible VoIP solution with the best-in-class Voice over IP processing capability in CPE devices.

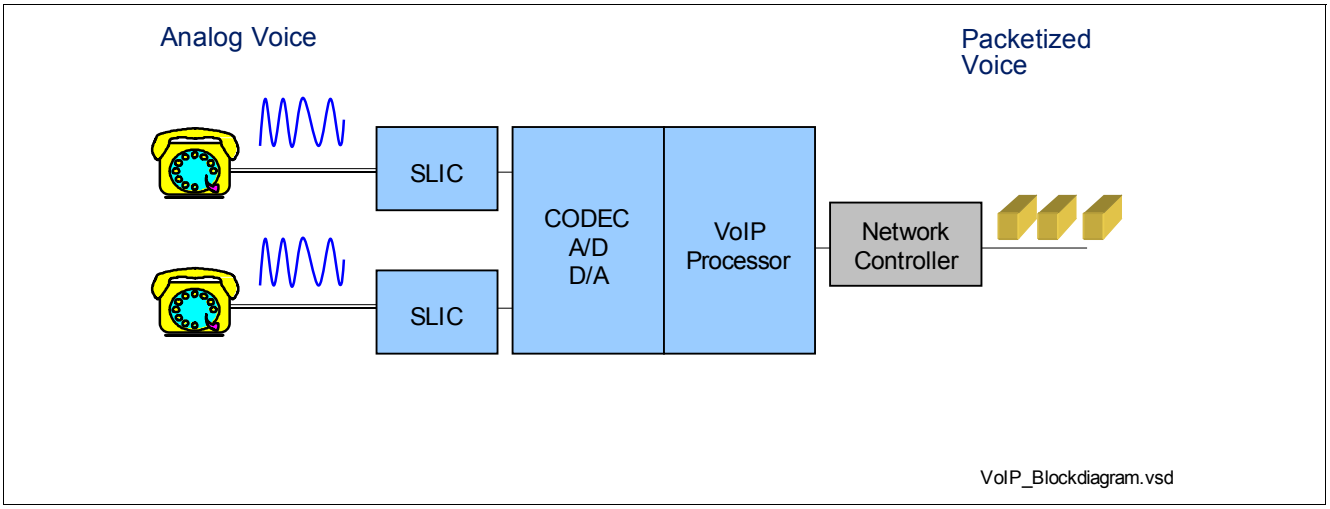

Figure 1 VoIP CPE System Block Diagram

As illustrated, a typical VoIP CPE system with analog telephone interface is built up by several major function blocks. First is the SLIC (Subscriber Line Interface Circuit), its function is to supply the ringing voltage, DC-feeding and line current sensing. The analog voice signal needs to be sampled and digitized to PCM signal for further processing and CODEC is working here as the A/D or D/A converter. Last but not the least, the voice signal needs to be coded by certain compression algorithm (e.g. G.729) and packetized into RTP so will be sent to Network controller for further transmission. On the other hand, for voice packet coming from network side, the VoIP processor works as decoder and generate the PCM voice stream from packetized voice. VINETIC®-CPE is the integrated system solution for those or one of the function blocks. It supports G.711, G.726 ADPCM,G.723.1 G.729A/B/E, iLBC voice coder and T.38 FAX relay, as well as the network voice processing features like Jitter Buffer, Line Echo Cancellation, VAD, CID, AGC etc. The CODEC/SLIC features are programmable to fullfill the world wide analog telephone requirements.

From a 1-channel low-end VoIP analog adapter to the multi-channel FXS/FXO VoIP router; from the VoIP DECT basestation to a xDSL home gateway with FXS/FXO for both analog and ISDN lines, today's VoIP CPE products are featuring variable VoIP capabilities. To cover these applications, the members of VINETIC®-CPE series are designed to be hardware pin- and software-compatible, allowing the maximum flexibility while offering the optimized feature set per application.

VINETIC®-CPE is a system solution from Infineon, that means customer get not only the hardware device but also a system package containing the processor's firmware, device driver on the host controller and full documentation. Infineon supplies VINETIC®-CPE driver for both Linux/VxWorks OS, and the driver itself is organized as OS independent in order to enable the easy porting to any other embedded operation system. On the top level of driver software there is Telephone Application Programming Interface (TAPI) which gives developer the way to fast realize high level applications. All series devices are software compatible.

2 VINETIC®-CPE Family Overview

VINETIC®-CPE family contains scalable device members. It could be classified by the following major categories:

- VINETIC®-PLUS version, integrating 2 or 1 channel SLIC, CODEC and the VoIP Processor as single device VoIP engine on analog telephone lines
- VINETIC®-CPE/-ATA version with 2 or 1 channel analog CODEC, VoIP Processor and interface to Infineon SLIC
- VINETIC®-0/-CL version as pure VoIP Processor without analog CODEC

Among them, the VINETIC®-CPE/-ATA version and VINETIC®-0/-CL version are hardware pin-pin compatible, all the family members are software compatible. The following is feature comparison table for the VINETIC®-CPE family members.

Table 1 VINETIC®-CPE Device Feature Comparison Table

Product Name	VINETIC®-2PLUS	VINETIC®-1PLUS	VINETIC®-2CPE	VINETIC®-1CPE
Sales Code	PEB 33322	PEB 33321	PEB 3332 PEF 3332	PEB 3331 PEF 3331
Package Type	PG-LBGA-144	PG-LBGA-144	PG-TQFP-100 PG-TQFP-64	PG-TQFP-100 PG-TQFP-64
Analog CODEC	2	1	2	1
SLIC Support	2 SLIC-DC integrated	1 SLIC-DC integrated	SLIC-DC V1.2 SLIC-E V2.1	SLIC-DC V1.2 SLIC-E V2.1
G.723.1/ G.729 A/B/E	4	2	4	2
G.711/ G.726 ADPCM/ iLBC	4	2	4	2
T.38Fax Relay	4	2	4	2
Line Echo Cancellation	Up to 128 ms (Window Based)	Up to 128 ms (Window Based)	Up to 128 ms (Window Based)	Up to 128 ms (Window Based)
Jitter Buffer	Adaptive	Adaptive	Adaptive	Adaptive
PCM Interface	Yes	Yes	Yes	Yes
DTMF, CID Receive and Send	Yes	Yes	Yes	Yes
Main Applications	Mini size Portable VoIP CPE with analog telephone interface		Wide range of VoIP CPEs like VoIP router, xDSL home gateway, SOHO IP PBX	

Table 2 VINETIC®-CPE Device Feature Comparison Table

Product Name	VINETIC®-2ATA	VINETIC®-1ATA	VINETIC®-CL	VINETIC®-0
Sales Code	PEB 3342	PEB 3341	PEB 3340	PEB 3320
Package Type	PG-TQFP-100 PG-TQFP-64	PG-TQFP-100 PG-TQFP-64	PG-TQFP-100 PG-TQFP-64	PG-TQFP-100 PG-TQFP-64
Analog CODEC	2	1	n/a	n/a
SLIC Support	SLIC-DC V1.2	SLIC-DC V1.2	n/a	n/a
G.723.1/ G.729 A/B/E	2	2	2	4
G.711/ G.726 ADPCM/ iLBC	2	2	2	4
T.38Fax Relay	2	1	n/a	4
Line Echo Cancellation	Up to 16 ms	Up to 16 ms	n/a	Up to 128 ms (Window Based)
Jitter Buffer	Adaptive	Adaptive	Adaptive	Adaptive
PCM Interface	Yes	Yes	Yes	Yes
DTMF, CID Receive and Send	Yes	Yes	Yes	Yes
Targeting Applications	Low-cost VoIP ATA/router, Low-cost VoIP Home Gateway		VoIP DECT base station	VoIP processor for CPE or IP PBX

Table 3 VINETIC®-CPE Package Type Comparison Table

Package Type	PG-TQFP-100	PG-TQFP-64	PG-LBGA-144
Host Interface	Serial: SPI, SCI Parallel: Intel/Motorola Mode	Serial: SPI, SCI	Serial: SPI, SCI Parallel: Intel/Motorola Mode
GPIO	8	0	8
Product List	VINETIC®-2CPE/-1CPE VINETIC®-2ATA/-1ATA VINETIC®-CL/-0	VINETIC®-2CPE/-1CPE VINETIC®-2ATA/-1ATA VINETIC®-CL/-0	VINETIC®-2PLUS/-1PLUS

2.1 VINETIC®-2PLUS/-1PLUS

VINETIC®-PLUS version is the world's first VoIP processor that integrates SLIC functions. With the 2 or 1 integrated Subscriber Line Interface Circuit (SLIC), it enables the most compact solution for VoIP telephony CPE products.

2.1.1 Main Features

VINETIC®-2PLUS (see **Figure 2**) is a 2-channel CODEC/2-channel SLIC VoIP system solution and supports two FXS interfaces. Via its PCM interface a external device, e.g. ISDN, CODEC/DAA for FXO can be implemented.

VINETIC®-1PLUS (see **Figure 3**) is a 2-channel CODEC/1-channel SLIC VoIP system solution and supports one FXS and one FXO (via external DAA device on the second CODEC channel).

VINETIC®-2PLUS/-1PLUS contains a fully programmable CODEC/SLIC system with enhanced signal-processing and VoIP capabilities. The SLIC-part of the VINETIC®-2PLUS/-1PLUS utilizes two/one single-channel high-voltage SLICs with power optimized DC/DC-based supply voltage generation. It is able to provide cost optimized solutions particularly in CPE applications, requiring only a single power supply voltage between 9 V and 40 V. All the necessary POTS supply and battery voltages are generated by a buck-boost DC/DC converter together with a minimum of external components. This technology allows the generation of ring signals up to 65 V_{RMS} and the system is able to support loads up to 5 REN.

The VoIP processor inside VINETIC®-PLUS version is flexible and powerful. All popular VoIP coders, for example G.711, G.726 ADPCM, G.723.1, G.729 A/B/E and iLBC as well as T.38 Fax relay are supported. The VINETIC®-2PLUS is able to support up to 4-channel G.723.1 or G.729 low bitrate voice coder simultaneously, and VINETIC®-1PLUS is able to do 2-channel voice coders together, thus they both enable 3-party VoIP conferencing functions. Voice is compressed by the processor and sent out as RTP/RTCP package via SPI or Parallel interface to the host controller.

Except those features VINETIC®-PLUS version contains Jitter Buffer, VAD, CNG and LEC etc, which are the most important voice quality related features that system engineers should consider. The Window based LEC on VINETIC®-PLUS is able to support up to 128 ms echo cancellation for both Near-End Echo and Far-End Echo caused on the analog telephone line.

Both VINETIC®-2PLUS and VINETIC®-1PLUS version have PCM interface to the second device. And the one SLIC version VINETIC®-1PLUS keeps its second CODEC channel free for FXO operation.

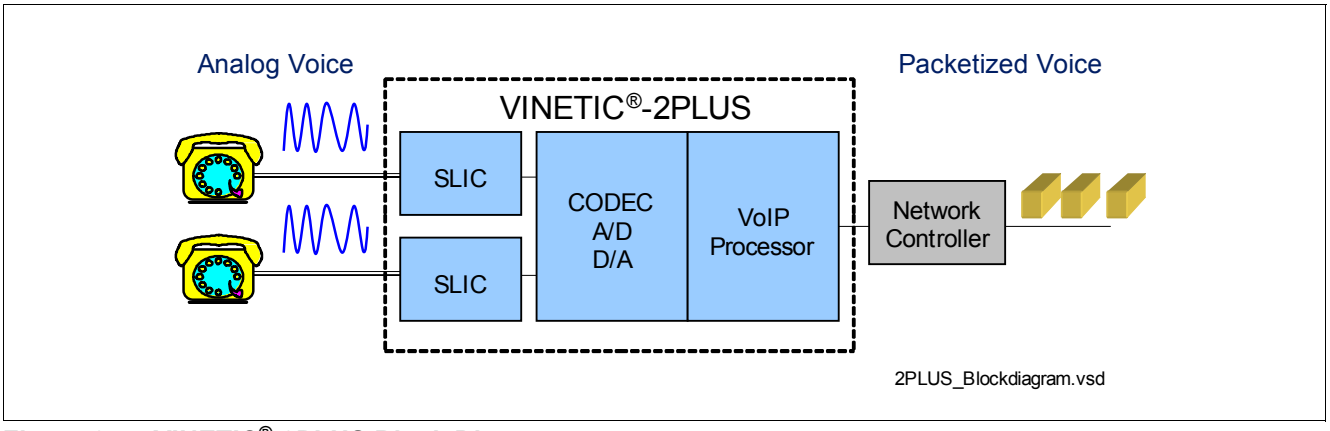

Figure 2 VINETIC®-2PLUS Block Diagram

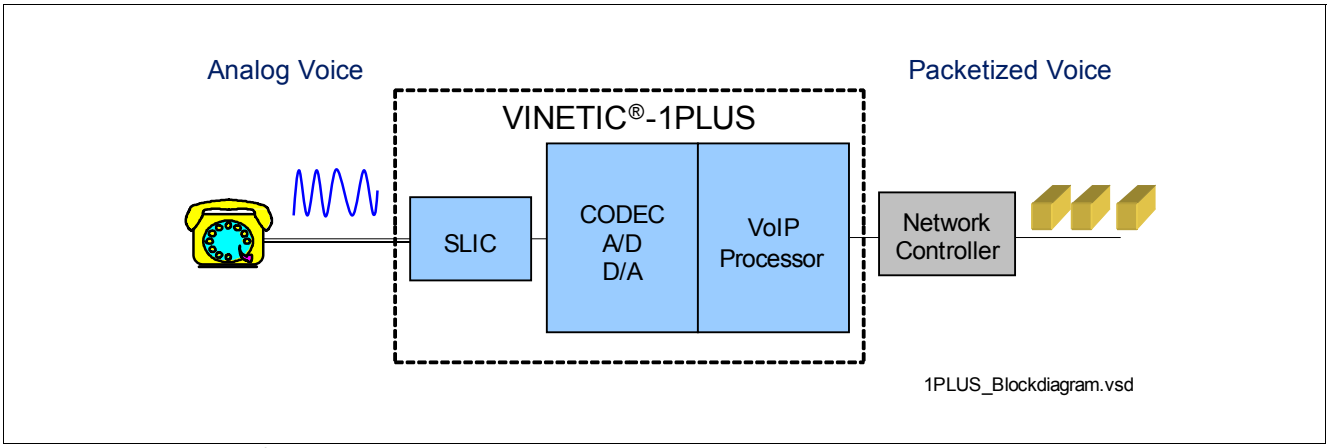

Figure 3 VINETIC®-1PLUS Block Diagram

2.1.2 Package

Both VINETIC®-2PLUS and VINETIC®-1PLUS are packaged in the Green PG-LBGA-144 package according to the RoHS requirement. The details of package information can be found in **[5]**.

2.1.3 Applications

VINETIC®-PLUS is the world first and smallest VoIP processor integrating with CODEC/SLIC. Typical application for VINETIC®-2PLUS and VINETIC®-1PLUS are portable VoIP ATA, wireless router or VoIP Home gateway with compact PCB size.

Figure 4 illustrates one portable wireless VoIP router based on VINETIC®-1PLUS and Infineon network processor WildPass featured with wireless LAN baseband. The whole system is built up with 1FXS, 1FXO, 100/10 Mbit/s Ethernet WAN and the Wireless LAN 802.11b/g interface.

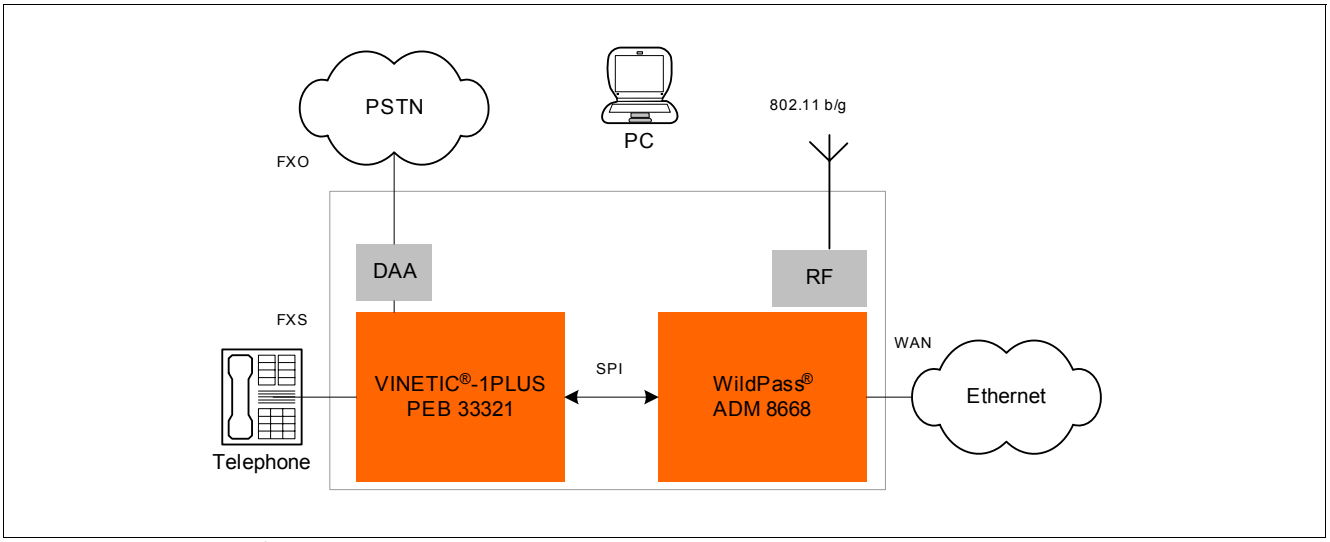

Figure 4 VINETIC®-PLUS Application Example

2.2 VINETIC®-2CPE/-1CPE

The VINETIC®-2CPE/-1CPE is the most capable member of Infineon's VINETIC®-CPE family. With the system solution (DSP firmware and software device driver) provided by Infineon, it is optimized for all kinds of VoIP CPE as well as Small and Medium Enterprise (SME) VoIP applications.

2.2.1 Main Features

The VINETIC®-2CPE/-1CPE integrates VoIP DSP and RAM/ROM for voice processing as well as the 2 or 1-channel CODEC with SLIC interfaces. VINETIC®-2CPE is a 2-channel CODEC VoIP system solution and supports two SLIC interfaces; VINETIC®-1CPE is a 1-channel CODEC VoIP system solution and supports one SLIC interface. Via the PCM interface an external voice device, e.g. ISDN, CODEC/DAA for FXO can be interoperated with VINETIC®-2CPE/-1CPE.

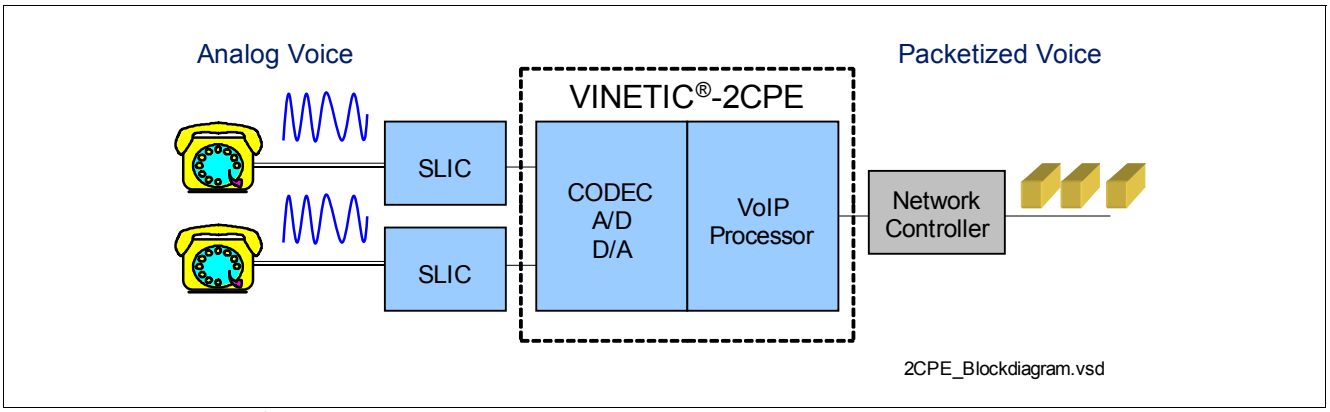

Figure 5 VINETIC®-2CPE Block Diagram

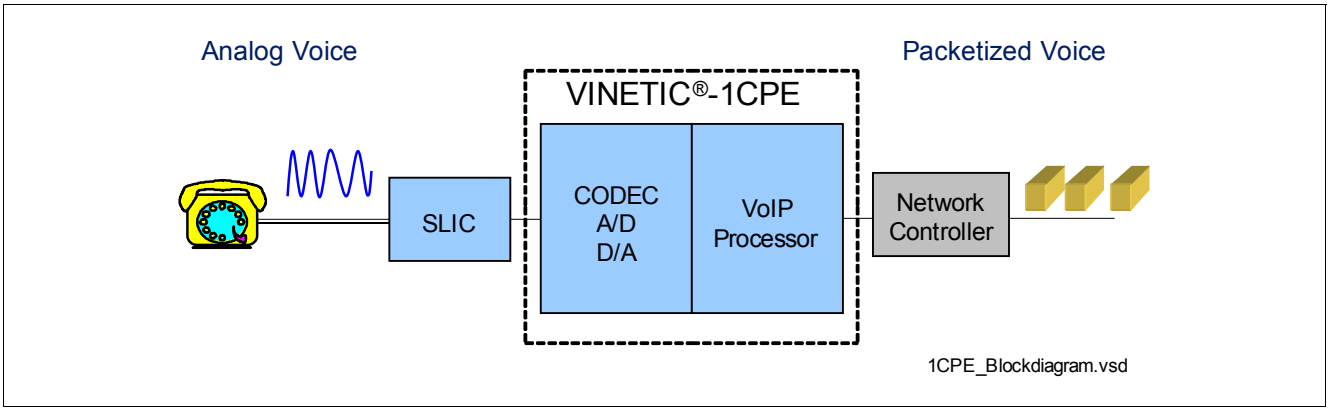

Figure 6 VINETIC®-1CPE Block Diagram

The VoIP processor inside VINETIC®-2CPE/-1CPE version is similar to the VINETIC®-2PLUS/-1PLUS thus keeps the flexible and powerful characters. There are a maximum of 4 VoIP channels (voice coder like G.729, T.38 Fax relay and signaling like Caller ID generation/detection, Jitter buffer etc.) inside VINETIC®-2CPE and 2 VoIP channels inside VINETIC®-1CPE. Both VINETIC®-2CPE (see **Figure 5**) and VINETIC®-1CPE (see **Figure 6**) versions can interface to Infineon SLIC-DC V1.2 (mainly for VINETIC®-CPE application) or SLIC-E V2.1 (mainly for CO/Enterprise application) for different POTS requirements.

With this scalability in system structure the VINETIC®-2CPE/-1CPE is able to support multi-category VoIP systems: from the VoIP wireless router to xDSL home gateway, from the WiMax IAD to a xPON ONT with Voice service. As there are maximum four voice channel and each has the necessary DSP performance, this device can well interoperate with other PCM devices like ISDN, Blootooth or can be cascaded to 4, 8, 16 analog channels to fulfill different system requirements.

The VINETIC®-2CPE/-1CPE also supports Window based LEC (WLEC) which is up to 128 ms by its encapsulated DSP. The software and DSP firmware are delivered by Infineon together with VINETIC®-CPE System Package, which is compatible with other VINETIC®-CPE members.

2.2.2 Package

Both VINETIC®-2CPE and VINETIC®-1CPE are packaged in the Green PG-TQFP-100 or PG-TQFP-64 packages according to the RoHS requirement. The availability of GPIO pins and parallel interface is the only difference between the two package variants. For details please refer to **Table 1**.

2.2.3 Applications

Typical applications for this version are VoIP Home gateway, variable broadband IADs, e.g. WiMax, xPON IAD, and SOHO IP PBX.

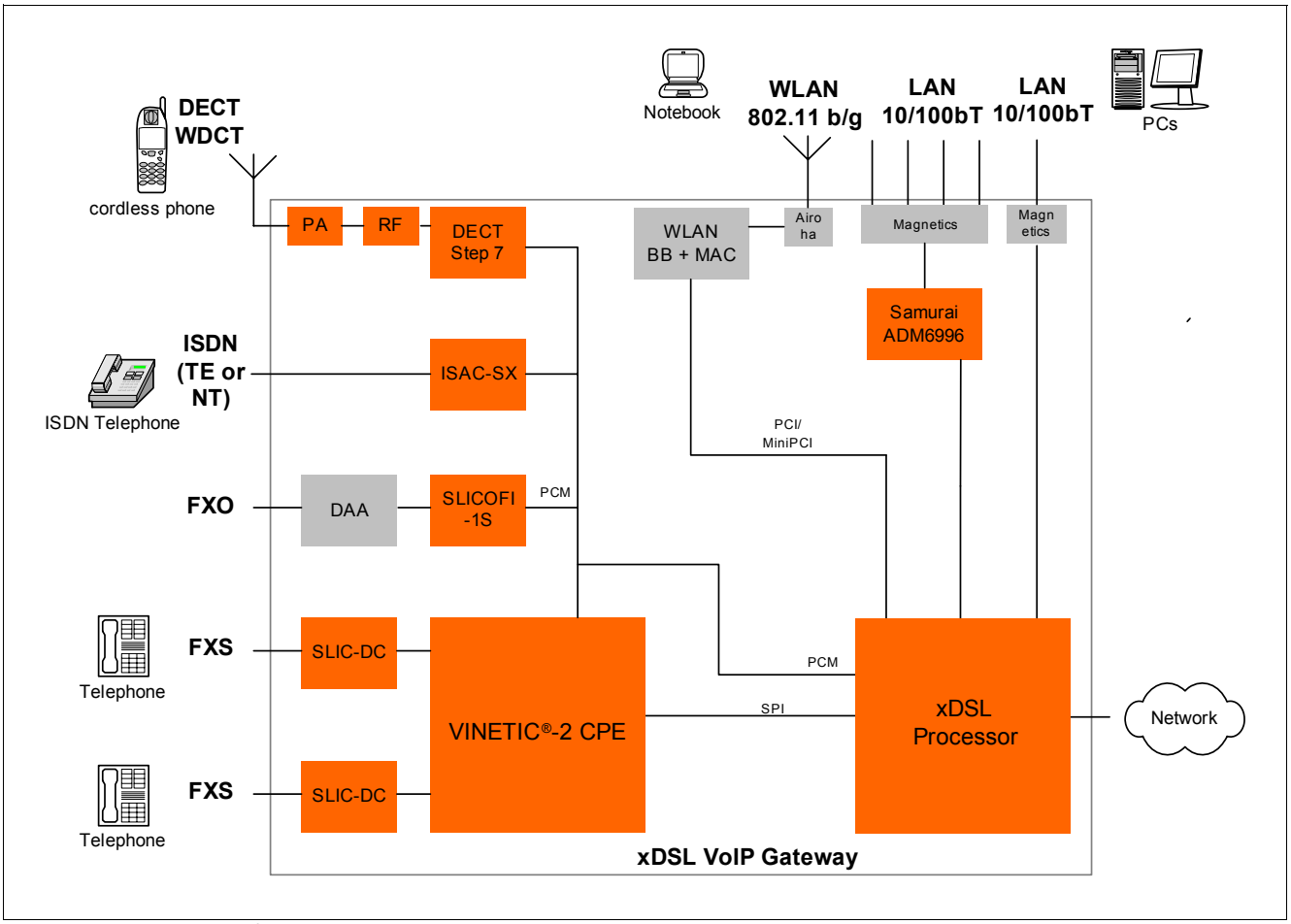

Figure 7 VINETIC®-CPE Application Example

Figure 7 shows the xDSL VoIP Gateway application example using the VINETIC®-2CPE in this system, the network processing and up-link protocol is supplied by AMAZON (ADSL2/2+ single chip processor) or VINAX (VDSL2 single chip network processor).The VINETIC®-2CPE has multiple functions here. First it is the VoIP processor and CODEC for the two channel, second it is also the voice processor supplying VoIP function to ISDN device (ISAC-SX)/ DECT baseband processor (STEP7), as well as the FXO function through the external CODEC (SLICOFI-1S)/DAA. Samurai (ADM6996) is the Infineon 5-port Ethernet switch for CPE application.

2.3 VINETIC®-2ATA/-1ATA

The VINETIC®-2ATA/-1ATA is cost optimized and feature reduced versions of VINETIC®-2CPE/-1CPE. The feature set of this version is targeting the low-cost VoIP ATA market.

2.3.1 Main Features

While the hardware structure of VINETIC®-2ATA/-1ATA is exactly the same as VINETIC®-2CPE/-1CPE version, the major system difference between ATA versions and CPE versions are the VoIP processing power. Within both 2ATA and 1ATA version there are maximum 2 VoIP channels compare to 4 channels in VINETIC®-2CPE. And there is only 16ms tail length Near-End LEC inside the ATA version compared to 128 ms WLEC of the CPE or PLUS version. Thus FXO operation on ATA version is not recommended.

The SLIC interface on VINETIC®-2ATA/-1ATA only supports the DC/DC converter integrated SLIC-DC (in comparison to VINETIC®-2CPE/-1CPE which is able to operate with both SLIC-DC and SLIC-E).

2.3.2 Package

As same as the CPE version both VINETIC®-2ATA and VINETIC®-1ATA are packaged in the Green PG-TQFP-100 or PG-TQFP-64 package.

2.3.3 Applications

A typical application for the VINETIC®-2ATA/-1ATA is a low cost 2- or 1-channel ATA home gateway without FXO. **Figure 8** illustrates a low-end 1 FXS ATA with 1 LAN/1WAN based on VINETIC®-1ATA and ADM3120. ADM3120 is the Ethernet network processor with integrated switch, MAC and PHY (2 ports).

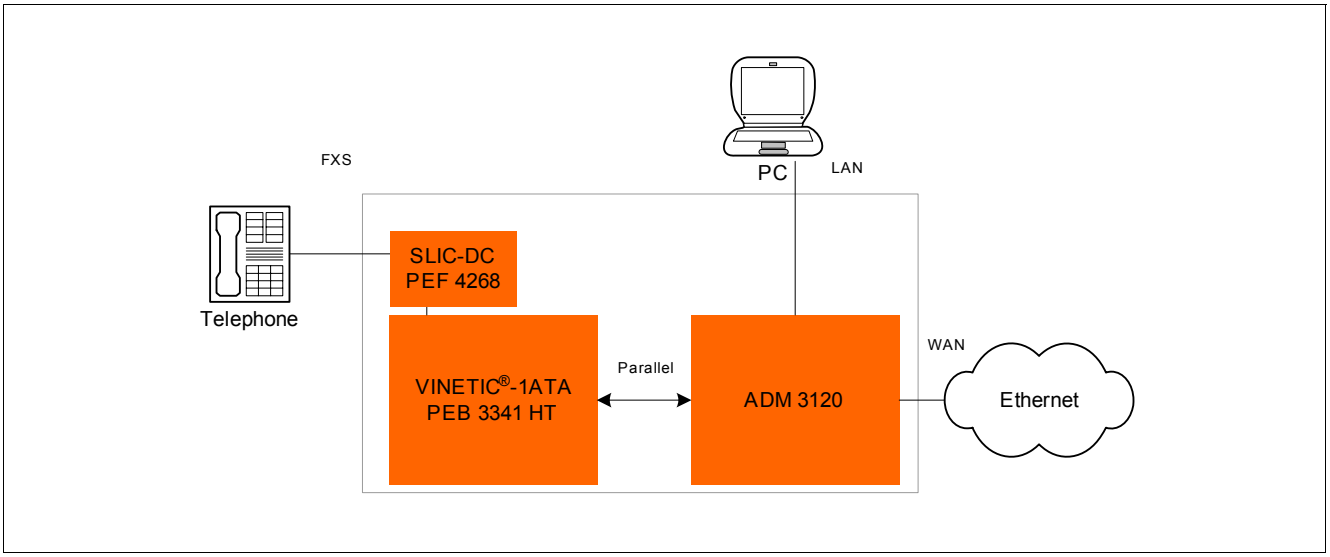

Figure 8 VINETIC®-ATA Application Example

2.4 VINETIC®-0/-CL

In some applications, for example the VoIP DECT and SOHO PBX with ISDN, there is no requirement for the CODEC/SLIC interface to an analog telephone. Here VINETIC®-0/-CL can be applied as the pure VoIP processor without CODEC.

2.4.1 Main Features

Same as other VINETIC®-CPE members they work between the PCM and host controller interface, to compress/decompress voice and packetize/depackitize the RTP package. VINETIC®-0 has maximum 4 VoIP channels and VINETIC®-CL has 2 channels. The 0 version featured with 128 ms tail WLEC and the CL version has no LEC function.

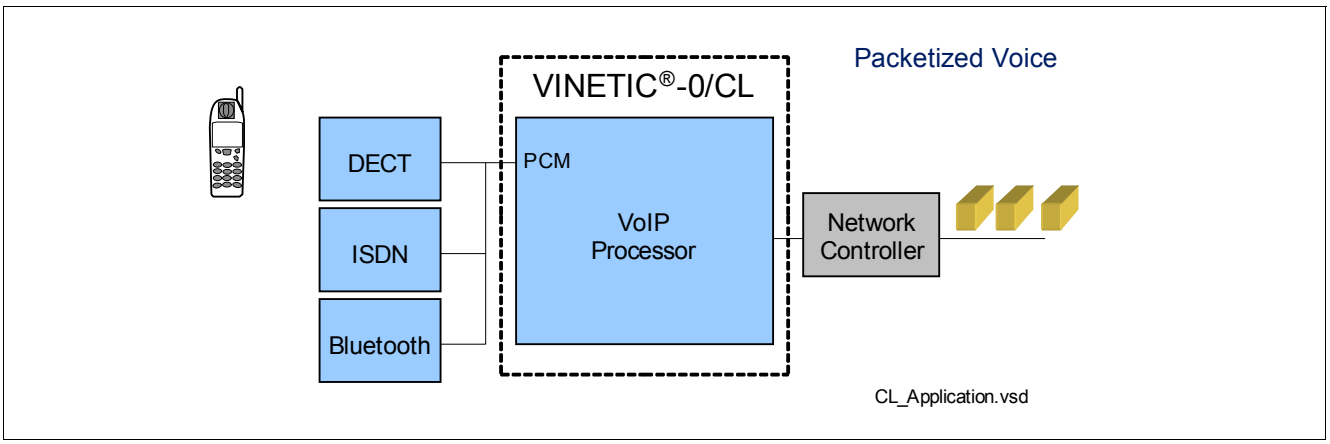

Figure 9 VINETIC®-CL/-0 Block Diagram

2.4.2 Package

Both VINETIC®-0 and VINETIC®-CL are shipped in Green PG-TQFP-100 or PG-LQFP-64 packages.

2.4.3 Applications

Typical application here is VoIP CPE without analog line, e.g. the DECT base station.

2.5 SLIC-DC and SLIC-E

The VINETIC®-CPE family is able to interface with two SLICs from Infineon's well-known SLIC family, the SLIC-DC V1.2 and SLIC-E V2.1 (only for VINETIC-2CPE/-1CPE).

The SLIC-DC (PEF 4268 V1.2) is a high-voltage ringing Subscriber Line Interface Circuit with integrated DC/DC converter. SLIC-DC is able to provide cost optimized solutions particularly in CPE applications, requiring only a single power supply voltage between 9 V and 40 V. All the necessary POTS supply voltages are generated by the on-chip buckboost DC/DC converter together with a minimum of external components. All CPE requirements on the ring signal can easily be met, even for worst-case loads (e.g. 5 US-REN). SLIC-DC offers the unique feature to reduce on-chip power dissipation. Reduced power and current requirements for the external DC/DC converter components make a further contribution to the whole system cost reduction.

The High voltage ringing Subscriber Line Interface Circuit SLIC-E (PEF 4265 V2.1) is the latest out of the wellknown and broadly used Infineon SLIC-E family. The highly flexible device offers 3.3 V compatibility and integrated balanced ringing up to 85 V_{RMS}. Integrated supply switches allow the choice between two negative battery voltages for voice transmission, whereas in the ring mode an additional positive supply voltage is used.

The SLIC-DC simplifies the analog design of a FXS line so is recommended in VoIP CPE system, however the overall system cost will be reduced by using the centralized DC/DC power supply and the SLIC-E, when a VoIP CPE system has multi FXS lines, for example, an 8-16 channel FXS SOHO IP PBX.

VINETIC®-2CPE/-1CPE operates with either SLIC-DC or SLIC-E, whereas VINETIC®-2ATA/-1ATA operates with SLIC-DC only.

SLIC-DC V1.2 is available with the two green package types PG-DSO-24-8 and PG-TQFP-48-1.

SLIC-E V2.1 is available in a single channel version (PEF 4265) in either P-/PG-DSO-20-24 or P-/PG-VQFN-48-4 power packages, or in a dual channel version (PEF 4365), packaged in P-/PG-DSO-36-10.

3 Software and Development Tools

VINETIC®-CPE series devices are supplied as a system solution which includes the latest system package release [19] and necessary documents. The device Data Sheet ([4], [5] and [6]) and Hardware Design Guide [9] are the basis for hardware and CPE system schematics design; the User's Manual System Description [10] documents the system functions and performance characteristic of the VINETIC®-CPE system; the Device Driver User's Manual Programmers Reference [12] describes the structure and usage of the device driver and is the reference for the driver porting and system integration.

EASY 5120 Voice over IP Router (VRT) is the development platform and reference design for VINETIC®-CPE. It demonstrates Infineon's VoIP router system with ADM5120 home network controller and VINETIC®-CPE. This reference platform is embedded Linux and SIP protocal based, it allows system engineers to develop time-to-market VoIP CPE products.

Together with EASY 5120 a linux BSP with source code is supplied. Infineon also offers wide range software products which are system solutions for kinds of VoIP system based on VINETIC®-CPE.

Literature References

[1] VINETIC®-CPE Product Brief

[2] VINETIC®-PLUS Product Brief

[3] VINETIC®-CPE Prel. Product Overview Rev. 1.0, (this document)

[4] VINETIC®-2CPE/-1CPE (PEB/PEF 3332/-3331) Version 2.2 Prel. Data Sheet Rev. 1.0, 2006-07-07

[5] VINETIC®-2PLUS/-1PLUS (PEB 33322/-33321) Version 2.2 Prel. Data Sheet Rev. 1.0, 2006-07-24

[6] VINETIC®-2ATA/-1ATA/-CL/-0 Version 2.2 Prel. Data Sheet Rev. 1.0, 2006-08-07

[7] SLIC-DC (PEF 4268) Version 1.2 Prel. Data Sheet Rev. 2.0, 2005-07-11

[8] SLIC-E/TSLIC-E (PEF 4265/PEF 4365) Version 2.1 Preliminary Data Sheet Rev. 1.0, 2006-01-20

[9] VINETIC®-2CPE/-1CPE (PEB/PEF 3332/-3331) Version 2.2 Hardware Design Guide Rev. 1.0, 2006-08-16

[10] VINETIC®-CPE Prel. User's Manual System Description Rev. 2.0, 2006-08-22

[11] TAPI User's Manual Programmer's Reference Rev. 1.2, 2006-08-09

[12] VINETIC®-CPE Device Driver User's Manual Programmer's Reference Rev. 1.2, 2006-09-01

[13] T.38 Fax Agent Release 1.2 User's Manual Programmer's Reference Rev. 1.0, 2006-08-16

[14] T.38 Protocol Stack Release 1.22 User's Manual Programmer's Reference Rev. 1.0, 2006-08-16

[15] T.38 Test Application Release 1.3 User's Manual Programmer's Reference Rev. 1.0, 2006-08-28

[16] VINETIC®-CPE T.38 Fax Relay Package Release 1.5.2.1 Release Note Rev. 1.0, in preparation

[17] SLIC-DC (PEF 4268) V1.2 Application Note Protection Rev. 3.0, 2006-03-21

[18] VINETIC®-CPE System Errata Sheet Rev. 2.0, 2006-08-24

[19] VINETIC®-CPE System Package Release Notes

Attention: Please refer to the latest revision of the documents.

www.infineon.com

Published by Infineon Technologies AG